THE ABC'S OF BMP'S

How to get proper results from field applications of BMP's

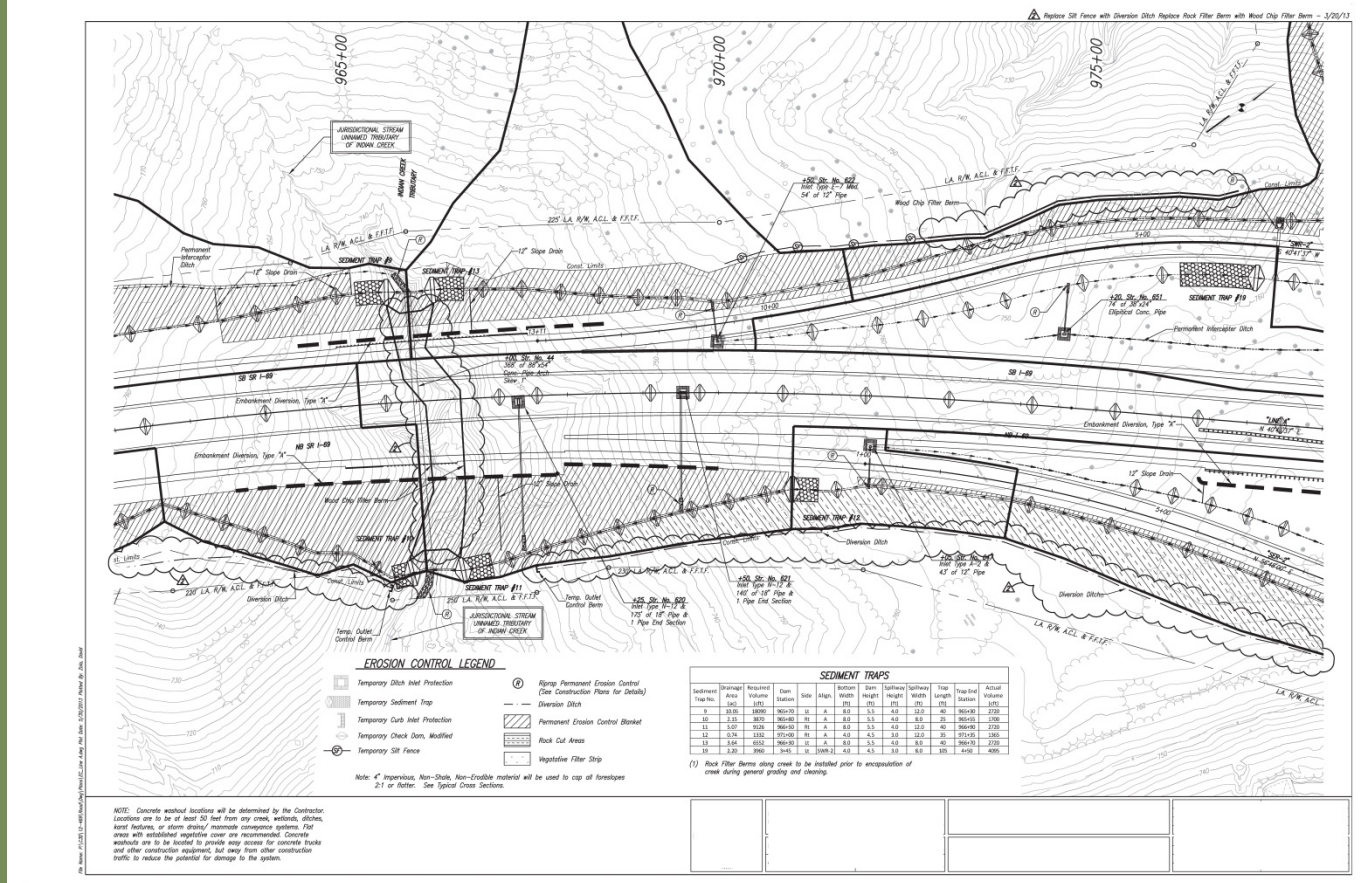
SWPPP PLAN DEVELOPMENT

- Field reviews of project are extremely important when developing effective SWPPP's to make sure you are utilizing the correct BMP's for your projects
- Sequencing of SWPPP to match construction sequencing.

SEQUENCING OF EROSION & SEDIMENT CONTROLS

On any given day, all erosion and sediment control measures should be appropriately sized, installed, and maintained to handle the drainage area coming from the current stage of construction.

Example of SWPPP Design



Sediment Trap No.	Drainage Area (ac)	Required Volume (cft)	Dam Station	Side	Align.	Bottom Width (ft)	Dam Height (ft)	Spillway Height (ft)	Spillway Width (ft)	Trap Length (ft)	Trap End Station	Actual Volume (cft)
9	10.05	18090	965+70	Lt	A	8.0	5.5	4.0	12.0	40	965+30	2720
10	2.35	3870	965+80	Rt	A	8.0	5.5	4.0	8.0	25	965+55	1700
11	5.07	9126	968+30	Rt	A	8.0	5.5	4.0	12.0	40	968+90	2720
12	0.74	1332	971+00	Rt	A	4.0	4.5	3.0	12.0	35	971+35	1365
13	3.64	6552	966+30	Lt	A	8.0	5.5	4.0	8.0	40	966+70	2720
19	2.20	3960	3+45	Lt	Diff. 2	4.0	4.5	3.0	8.0	105	4+50	4095

(1) Rock Filter Berms along creek to be installed prior to encapsulation of creek during general grading and cleaning.

EROSION vs SEDIMENT

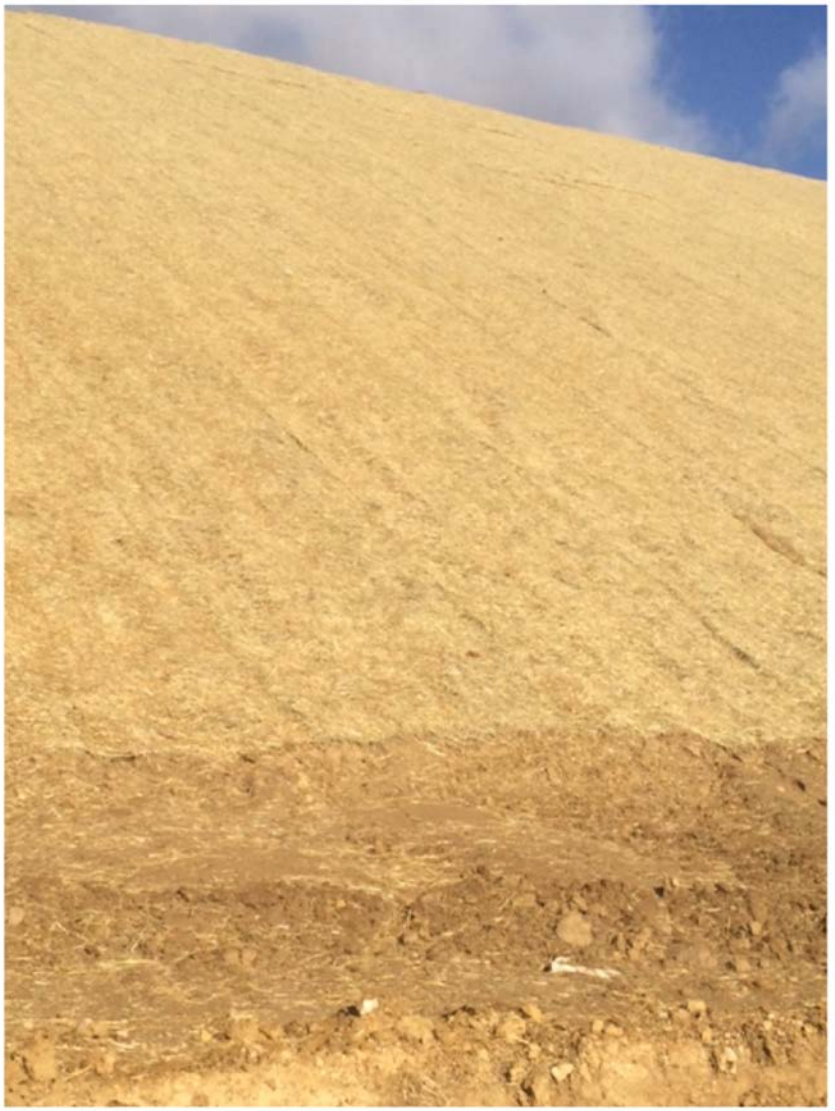
- Erosion is the physical dislodgment of particles from the surface by precipitation, surface runoff, or wind.
- Sediment is the material that is being moved off of the surface as a result of erosion.

Example of Construction Sequencing

EROSION CONTROL = STABILIZATION

EXAMPLE OF SLOPE STABILIZATION USING

EROSION CONTROL BLANKET



EXAMPLE OF SOIL STABILIZATION USING MULCH AT 2 TONS/ACRE

Example of Mulch That Does Not Meet the 2 tons/ac Specification

Proper Tracking of Slopes Reduces Erosion

Photo Showing Proper Slope Tracking

Photo Showing What Happens when Slopes are not Stabilized or Tracked Properly

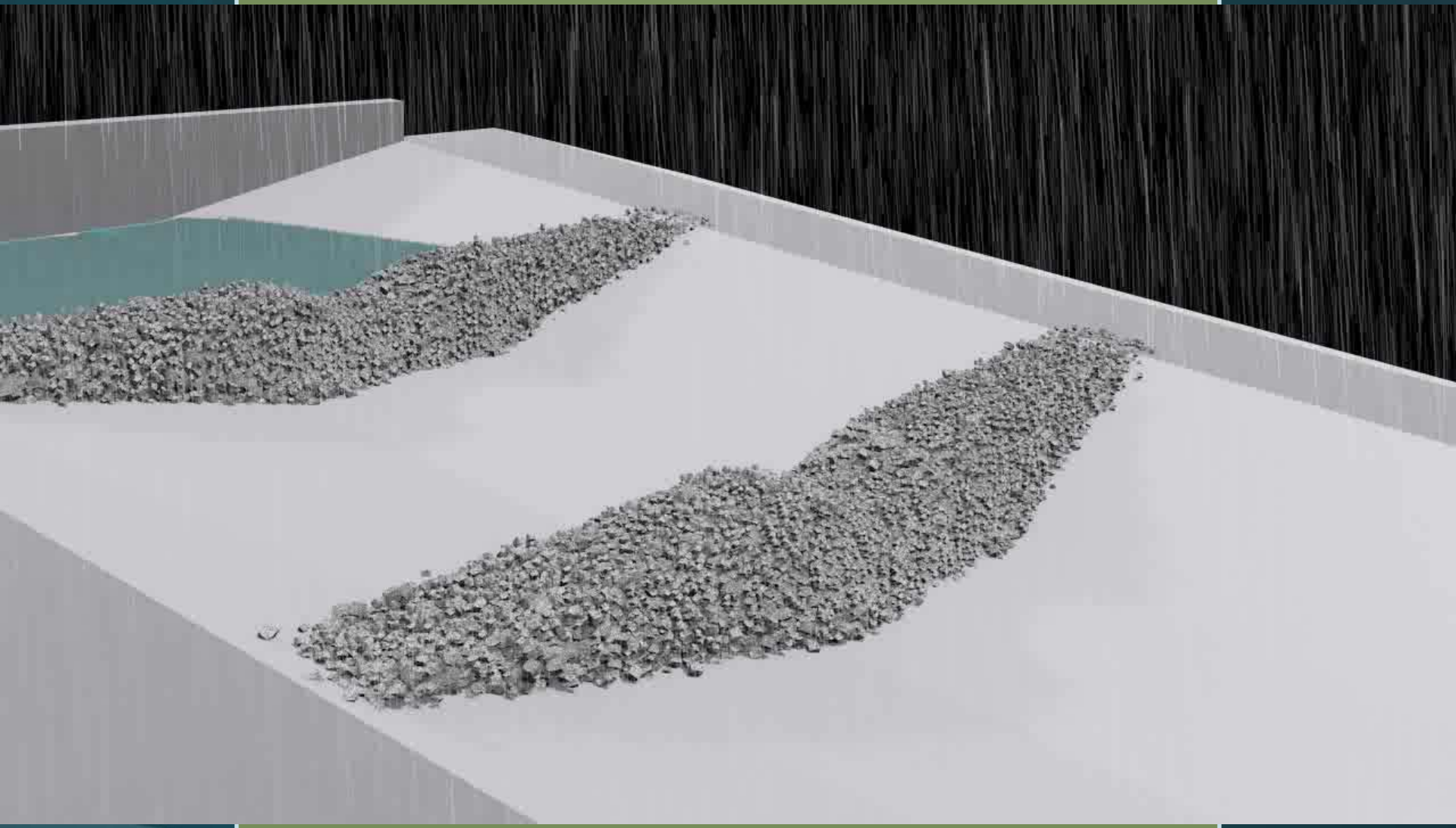
CHECK DAM

ARE USED FOR EROSION CONTROL

DITCH STABILIZATION

WITH TOE TO CREST CHECK DAMS

Photo Showing What Happens When Check Dams Are Not Spaced Toe to Crest or Installed Properly



Runoff Control Measures are Essential for Protecting Slopes

Examples of Improper Slope Drain Installation and Results

CONCRETE WASHOUTS

CONCRETE WASHOUTS

CONCRETE WASHOUTS

SEDIMENT CONTROL = CAPTURE

SILT FENCE

Good use of Silt Fence

Bad use of Silt Fence

Bad Installation of Silt Fence (Silt Fence Follies)

Alternative to Silt Fence Wood Chip Berm

Alternative to Silt Fence Rock Filter Berm

TEMPORARY CONSTRUCTION ENTRANCE

- Large Site must be a minimum of 150 feet long and 20 feet wide and 8 inches thick.
- Smaller sites are allowed to have smaller construction entrances.
- The purpose of construction entrances is to prevent tracking sediment onto public roads resulting in a safety hazard to the public.
- Maintenance of constructions entrances is a must and should occur as often as necessary to prevent sediment tracking out of the project.

Poor Construction Entrance

Proper Construction Entrance

SEDIMENT TRAPS

- Sediment traps are used for drainage areas that measure 5 acres or less
- Sediment traps should be designed for a holding capacity of 1,800 cubic feet per acre of contributing drainage area
- Potential Issues of stacking sediment traps.

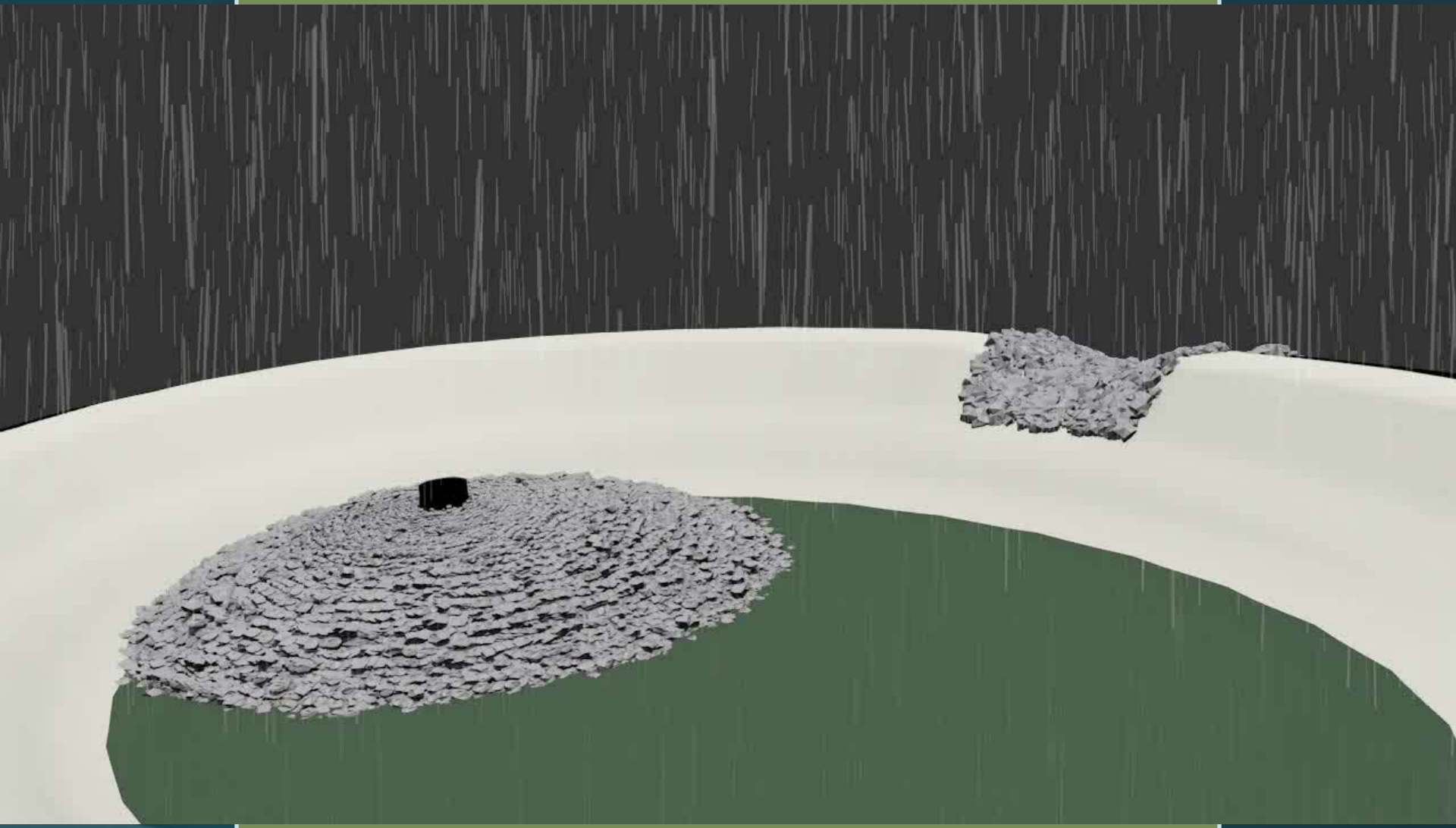
Photo Showing Properly Installed Sediment Trap

Photos Showing Improper Sediment Trap Installation

SEDIMENT BASINS

- Sediment basins should be used for all drainage areas that are greater than 5 acres
- Sediment basins should be designed for a holding capacity of 1,800 cubic feet per acre of contributing drainage area.
- Potential issues of stacking sediment basins.

Example of Properly Installed & Maintained Sediment Basin



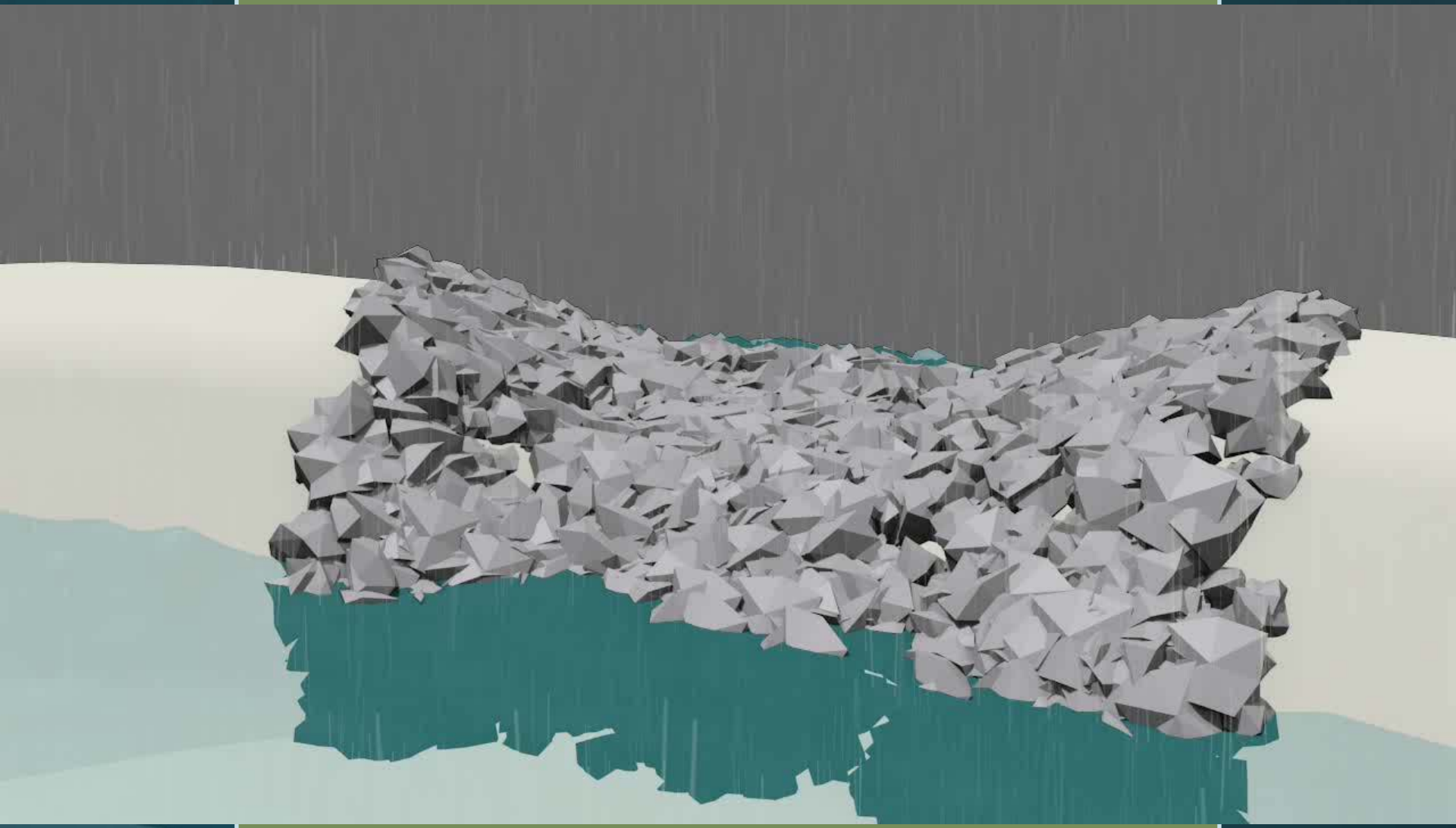
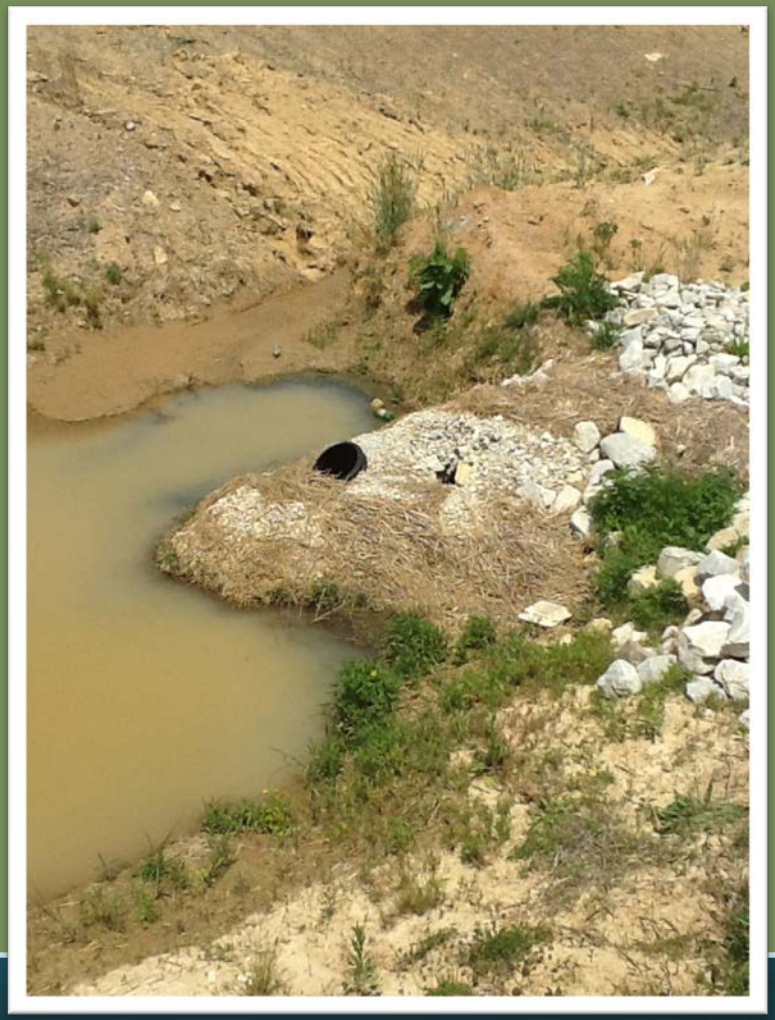


Photo Showing Improper Installation of Sediment Basin

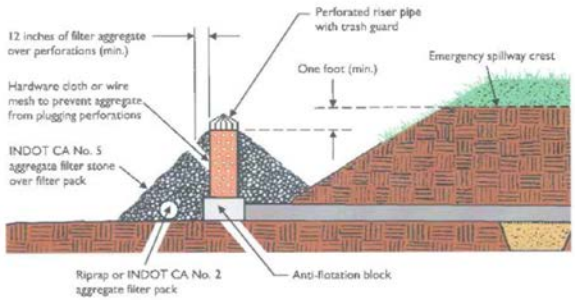


Sediment Basin Spec Sheet from the IDEM SWQM

TEMPORARY DRY SEDIMENT BASIN

Exhibit 1

Temporary Dry Sediment Basin
Riser Pipe



NOTE: For minimum dimensions see the "Specifications" section of this measure.

Source: Adapted from North Carolina Erosion and Sediment Control Planning and Design Manual, 1993

Sediment Bags/Pump Around Issues

FLOCCULENT SEDIMENT REMOVAL SYSTEM

- The use of flocculants to aid in the removal of sediment from runoff is becoming more common.
- Need to have runoff tested prior to use of flocculent to make sure the right type of flocculent is used.

Example of Flocculent System in Use

Erosion and Sediment Controls Must Work Hand in Hand to be Effective

What Happens When Measures Fail or
are Overwhelmed by Intense Rain Events

Notice of Termination

Pictures taken by Sony DSC-F505 camera under acceptable light intensity with more than 70% of green but less than 80% of green

Percentage of Green: 76.22%
Percentage of Gray Shades: 7.86%

Percentage of Green: 77.17%
Percentage of Gray Shades: 6.42%

QUESTIONS

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